



**Metal Locking Service Inc.**  
MLS Machine Shop



216 Colgate Avenue  
Buffalo, NY 14220

Toll Free **(866) FIX.IRON**

Fax: 716.824.0903

Email: [info@castironrepair.com](mailto:info@castironrepair.com)

[www.castironrepair.com](http://www.castironrepair.com)



**Metal Locking Service Inc.**  
MLS Machine Shop



# Cast Iron Repair



**On-Site Industrial Machine Repair**  
[www.castironrepair.com](http://www.castironrepair.com)

**On-Site, On-Time, Anytime**



**Metal Locking Service Inc.**

**MLS Machine Shop**



216 Colgate Avenue  
Buffalo, NY 14220

Toll Free **(866) FIX.IRON**

Fax: 716.824.0903

Email: [info@castironrepair.com](mailto:info@castironrepair.com)

[www.castironrepair.com](http://www.castironrepair.com)

## Company Introduction

Metal Locking Service Inc., founded in 1942, employs a precise, mechanical method of making permanent repairs to broken castings and machine parts.

No heat is used, thus no stresses are introduced and no post-repair machining is necessary to correct misalignment and warpage. Since there is no heat, metal locking repairs can be made in restricted areas where flames or welding arc is prohibited. Repairs are often made on location in the plant, without the necessity of major dis-assembly.

Maintaining production and reducing down time of broken equipment presents many new challenges. Solutions are arrived at after a careful analysis and then applying our experience to make a proper, dependable repair. The quality and craftsmanship thus achieved have earned for us the recommendation and endorsement of equipment manufacturers, insurance underwriters and inspection services.

We are proud of the ever-increasing list of satisfied customers which is becoming world-wide in scope.

The picture stories which follow are an attempt to show a cross section of repair applications. Most are "maintenance" repairs on equipment in use. It should be noted, however, that a substantial portion of our business is on new equipment and castings. Foundry casting faults, mishandling and improper machining during production, all contribute to the need for our service.

We welcome the opportunity to make an appraisal of your equipment repair problem.

### • Machine Shop Equipment

Lathes, Planer Beds, Boring Mills, etc.

### • Stamping Equipment, Presses

Rams, Flywheels, Frames, etc.

### • Power

Blocks, Heads, Transmission Housings

### • Foundry Products

Defects in New Castings

### • Pumps

Water, Steam, Gas, Air

### • Crushing Equipment

Shells, Eccentrics, Spiders,  
Jaws, Arms

### • Air Compressors

Cylinders, Bases, Pistons, etc.

### • Gears, Flywheels

### • Roll Housing

### Table of Contents

Metal Locking Procedure .....	Page 3
Power Transmission .....	Page 4
Industrial Machinery .....	Page 5
Aggregate Equipment .....	Page 6
Past Projects .....	Page 7

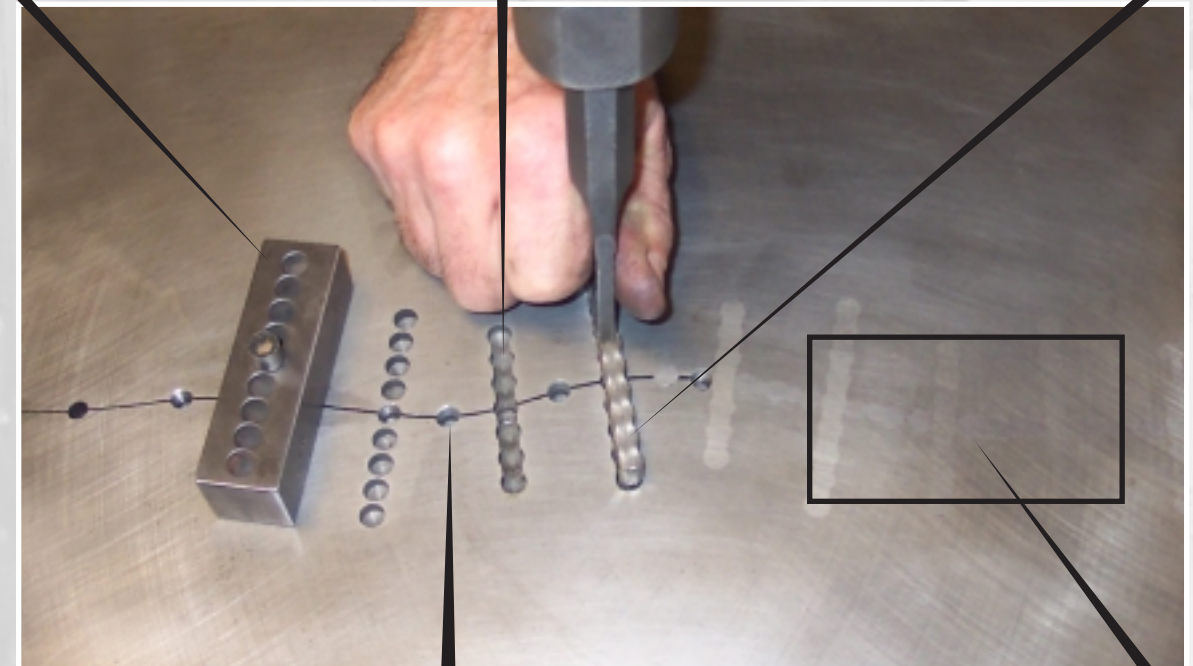
[www.castironrepair.com](http://www.castironrepair.com)

## Cast Iron Repair METAL LOCKING PROCEDURE

**1.** Drilling fixture is attached at right angles to the crack. A hole pattern is drilled and this is repeated at intervals from 3/4 to 1 1/4 inches apart.

**2.** Metal between each drilled hole is removed by ripping it away with pneumatic tools to form a slot. The stock thus removed is narrower than the drilled hole, thus forming a serrated opening.

**3.** Preformed locks of high tensile alloy are inserted into the slot. These locks are peened into the slots, one on top of the other, to a depth limited by the casting thickness and determined by the strength required.



**4.** After the locks are installed, holes are drilled, tapped and threaded fasteners are applied. These are spotted along the entire length of the crack, overlapping one another. Their purpose, in part, is to fill the fracture with new metal and provide a pressure seal.

**5.** Entire repair area is peened flush and finish ground as you see here.



Another form of lock is this metal inlay, also known as master lock. Size, shape and metal used for inlay varies with the requirements of each repair or equipment operation. This is used in areas of high stress concentration, particularly where it is necessary to dissipate local stress over wider area; gain strength from internal ribs; or to obviate local cavitation such as sand holes, etc.



**Metal Locking Service Inc.**

**MLS Machine Shop**



Toll Free **(866) FIX.IRON**

[www.castironrepair.com](http://www.castironrepair.com)

# Cast Iron Repair POWER TRANSMISSION



MLS arrival off the coast of Luanda, Africa for a metal locking repair of a damaged diesel engine on an oil tanker



16 cylinder diesel generator to be repaired



Repaired window section of 16 cylinder diesel generator, repair highlighted for clarity



Broken tooth on a pinion gear



Typical gear tooth repair. Replacement teeth are fabricated, fit and aligned to ensure smooth, tight fit with proper lash



Damaged pump in the process of being repaired; locks and lacing being inserted



Repaired pump that has passed pressure testing, with repair highlighted for clarity



**Metal Locking Service Inc.**  
MLS Machine Shop



Toll Free (866) FIX.IRON

[www.castironrepair.com](http://www.castironrepair.com)

# Cast Iron Repair INDUSTRIAL MACHINERY



Broken flange on a large cast iron hub



Hub repaired by metal locking process



35,000 lb forging press ram being repaired, cast iron or cast steel - no problem



Large turbine scroll with porosity in the machined surface, being repaired by our metal locking process and hand finished back to machined dimensions



Broken press crown, metal locking repair in-process



**Metal Locking Service Inc.**  
MLS Machine Shop



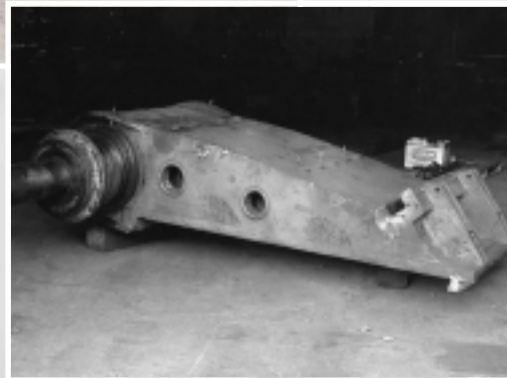
Toll Free (866) FIX.IRON

[www.castironrepair.com](http://www.castironrepair.com)

# Cast Iron Repair AGGREGATE EQUIPMENT



Broken rock crusher arm



Repaired and stress relieved



Cracked El-Jay cone style rock crusher



Gyrotory crusher casting



Large rebuilt ball mill trunnion housing



On-site inspection in San Jose, CA of large ball mill that had separated from the drive end trunnion



**Metal Locking Service Inc.**

MLS Machine Shop



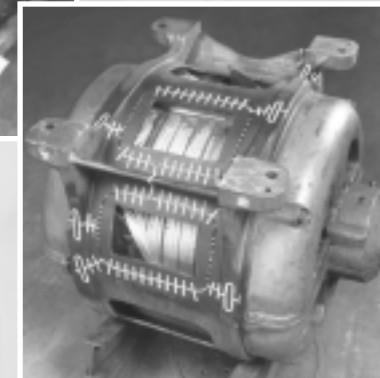
Toll Free (866) FIX.IRON

[www.castironrepair.com](http://www.castironrepair.com)

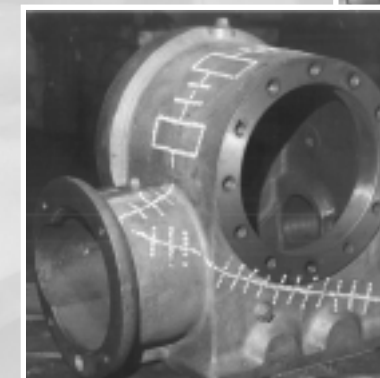
# Cast Iron Repair PAST PROJECTS



Broken 600 hp electrical motor housing



Repaired electrical motor housing

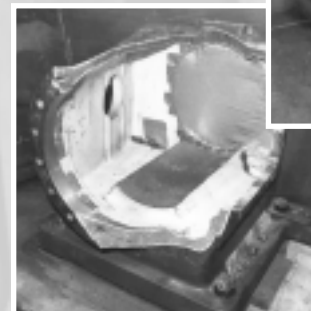


Repaired to O.E.M.

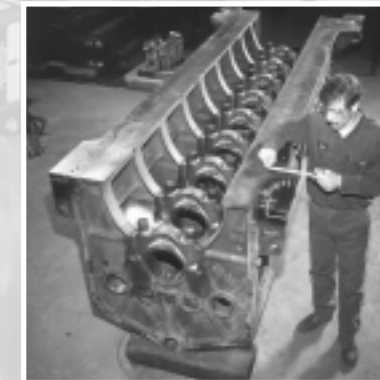
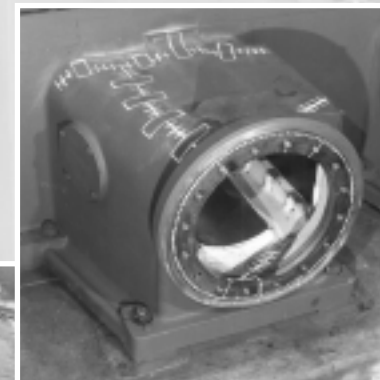


Broken valve body

Broken natural gas pump



Repaired with master locks



Repair complete



16-Cylinder Locomotive Engine with broken feet



**Metal Locking Service Inc.**

MLS Machine Shop



Toll Free (866) FIX.IRON